

Our National Research Support Challenge – eResearch in Australia: NCRIS, SuperScience and Beyond

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Agreeing on Terms

.... What is eResearch?

The Australian Definition

“eResearch infrastructure comprises the information and communication technology (ICT) assets, facilities and services which support research within institutions and across national innovation systems and which contribute to the capacity of researchers to undertake excellent research and deliver innovation outcomes.”

[2011 Strategic Roadmap (DIISR)]

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Some Thoughts About Research

- Research is diligent and systematic inquiry or investigation into a subject in order to discover facts or principles:
- The effectiveness of this activity depends most intimately on the rate of comprehension, which is..
- ..the capacity of the mind to understand; power to grasp ideas...
- Which....begs the question..

[Macquarie Dictionary definitions]

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Seeing is Understanding

- Comprehension is at its best when our systems of perception are optimally exploited
- Or.....

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... in the words of one Al Gore

“Visualization recognizes that more than half of the human brain is devoted to processing images and that for us, visual images are the most efficient way to understand...”

Presentation to (U.S.) Senate Subcommittee on
Science Technology and Space, July 1989

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Seventy-Five Years of Science

From atomic fission to Higgs boson

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The Lise Meitner Story



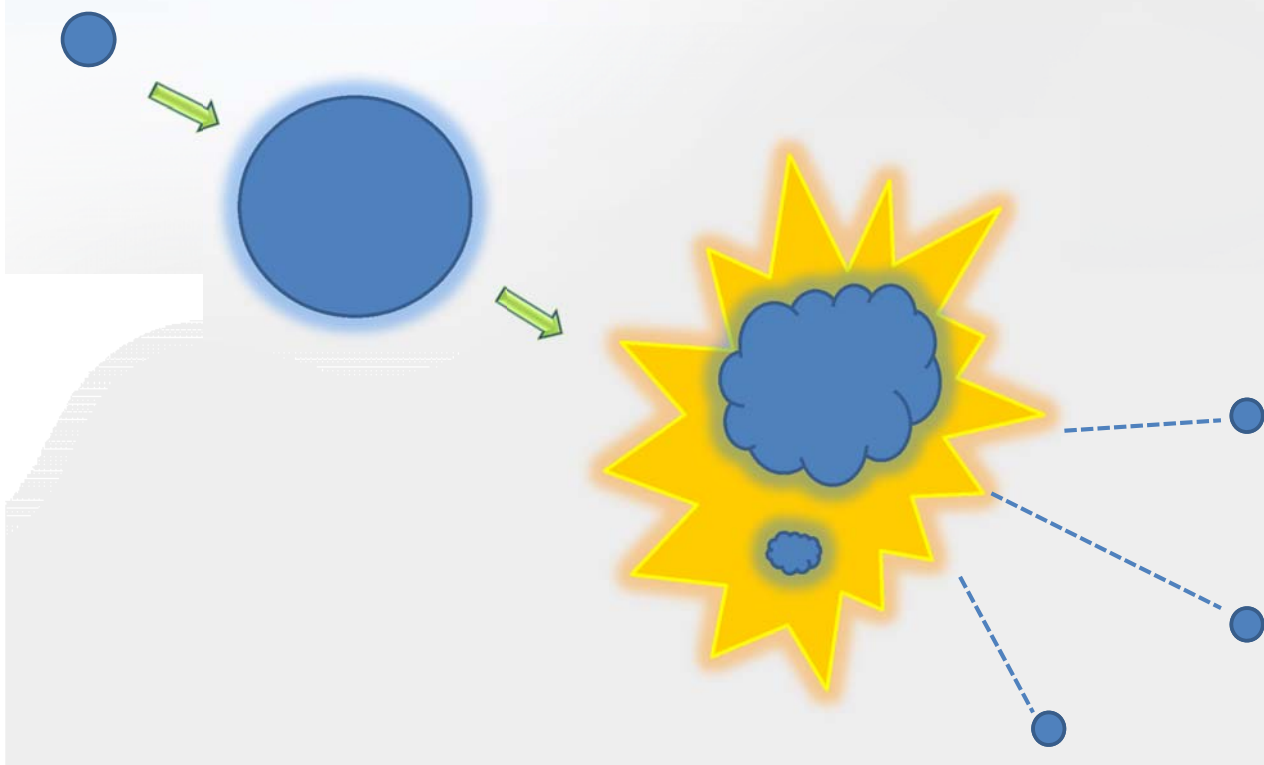
Image from Wikipedia



Aboutnuclear.org

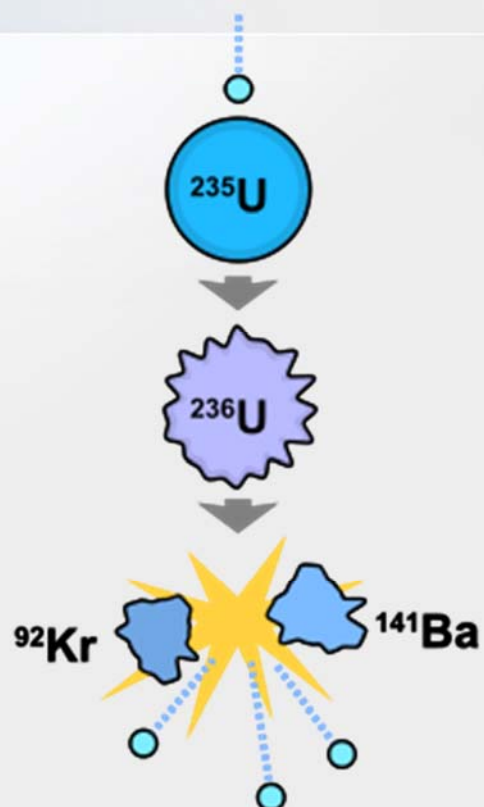
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Atomic Fission



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Atomic Fission



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The Write Up

ON p. 251 of this issue of NATURE, an account is given of recent investigations by Prof. O. Hahn, Prof. L. Meitner and F. Strassmann on the bombardment of uranium by neutrons.

Prof. Meitner and Dr. O. R. Frisch have discussed the development and implications of these results in a letter which also appears in this issue (p. 239).

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ie.....the first citation for this

In English, Letter to the Editors.. (one column)

Nature, 11 February 1939

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The Australian Definition, Take 2

.... eResearch infrastructure increases both the efficiency and effectiveness of research and opens up new and innovative research possibilities, across all disciplines including the ability to disseminate that knowledge”.

2011 Strategic Roadmap (DIISR)

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What Gets Governments Interested?

- **The prosperity – infrastructure chain**
- **[To be prosperous a country needs a good innovation ‘system’ which needs active research, which needs the best infrastructure that can be deployed]**

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The Realpolitik of the Australian Approach

- The champion partnership, (especially in confirming the centrality of “eResearch infrastructure” within the broader concept of “infrastructure”) but...
- The paymasters and the pipers

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The Australian Story

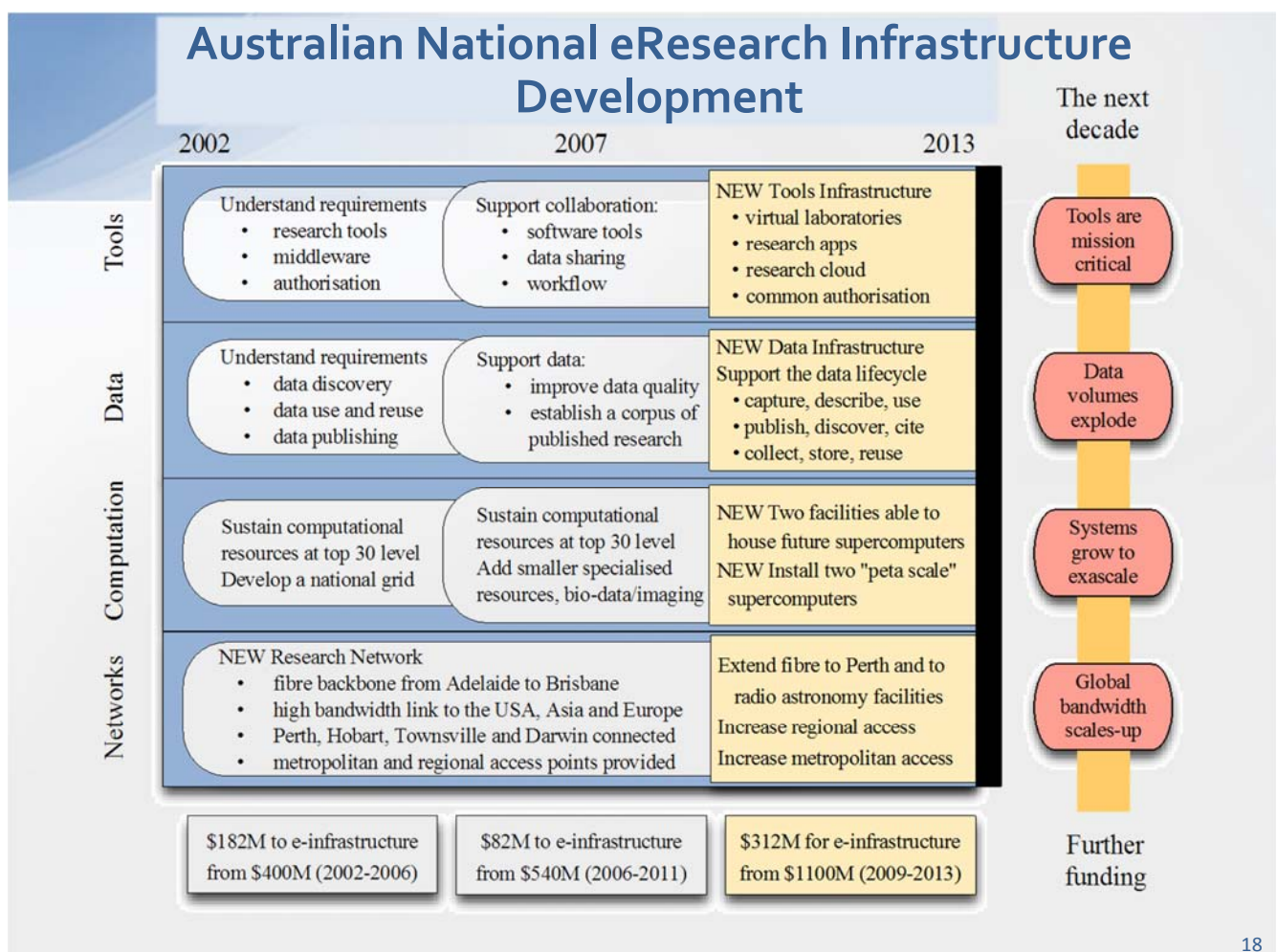
- **Chronology of (national) Government Investment**
 - Embedded collaborative infrastructure grants (RIBG, LIEF, MNRF) 90s +
 - APAC 2000+
 - The Systemic Infrastructure Initiative 2002+
 - NCRIS 2005 – 11
 - Super Science 2009+

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The Australian Mechanism

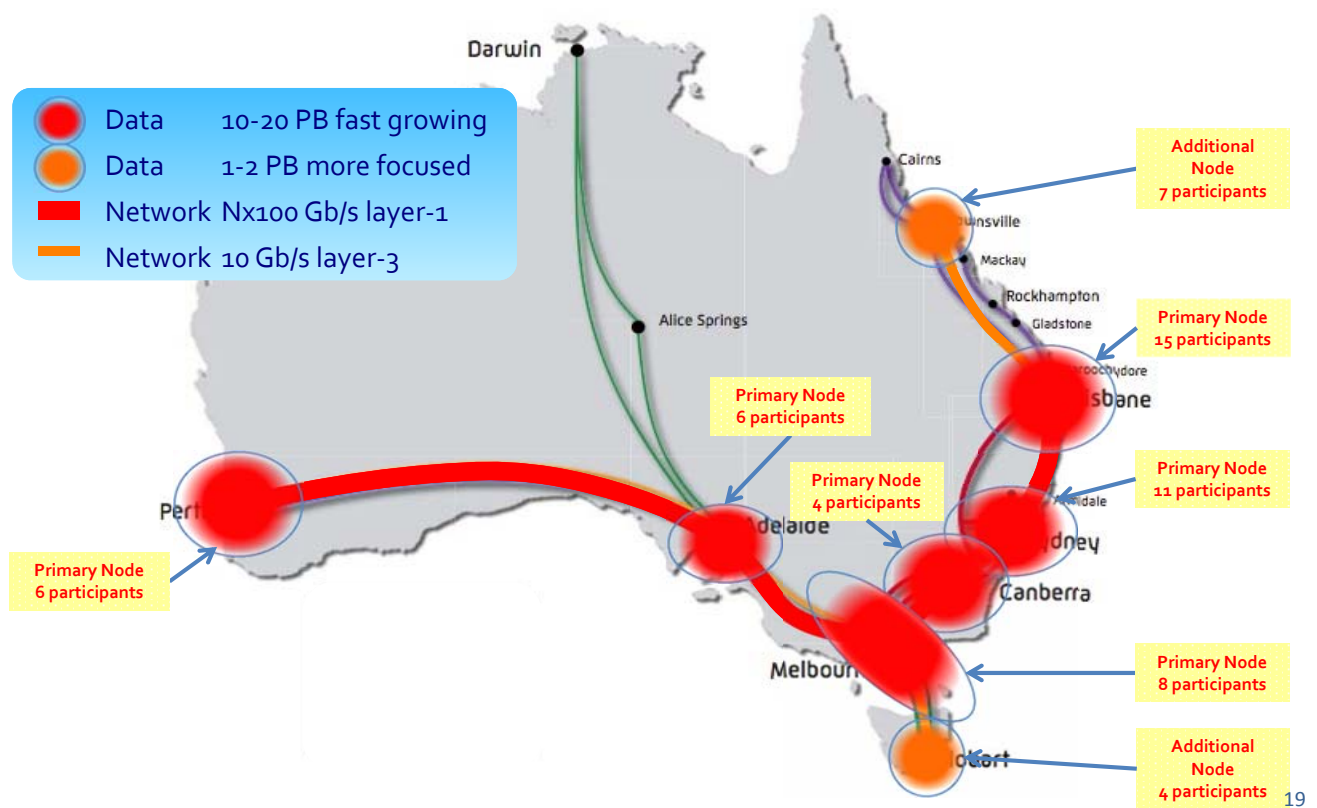
- **Preference for direct government agreements with communities - features**
 - Greater assurance of accountability
 - Generally fewer new structures with overheads, but diverse approaches (eg AuScope is a company)
 - But, depending on process, greater variability in execution, and
 - The problem of misplaced competitiveness

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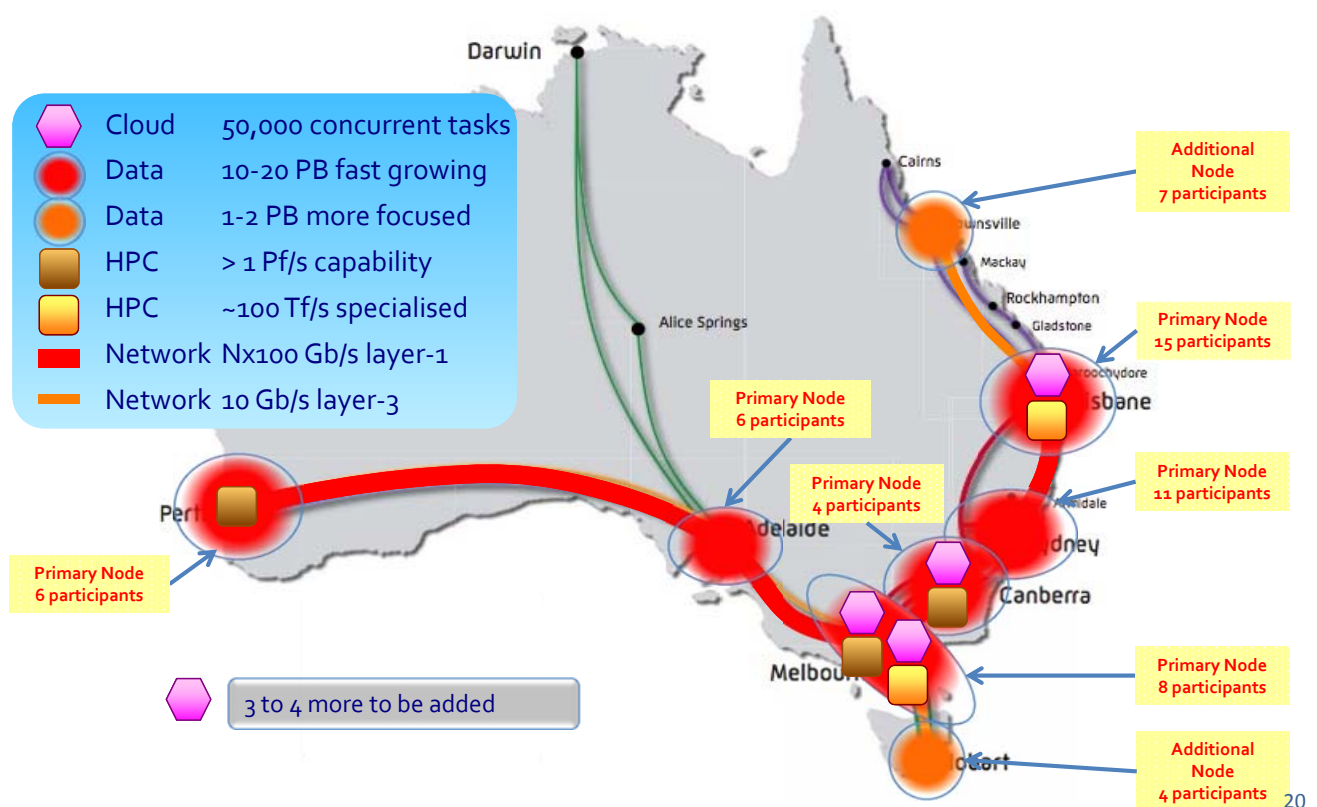


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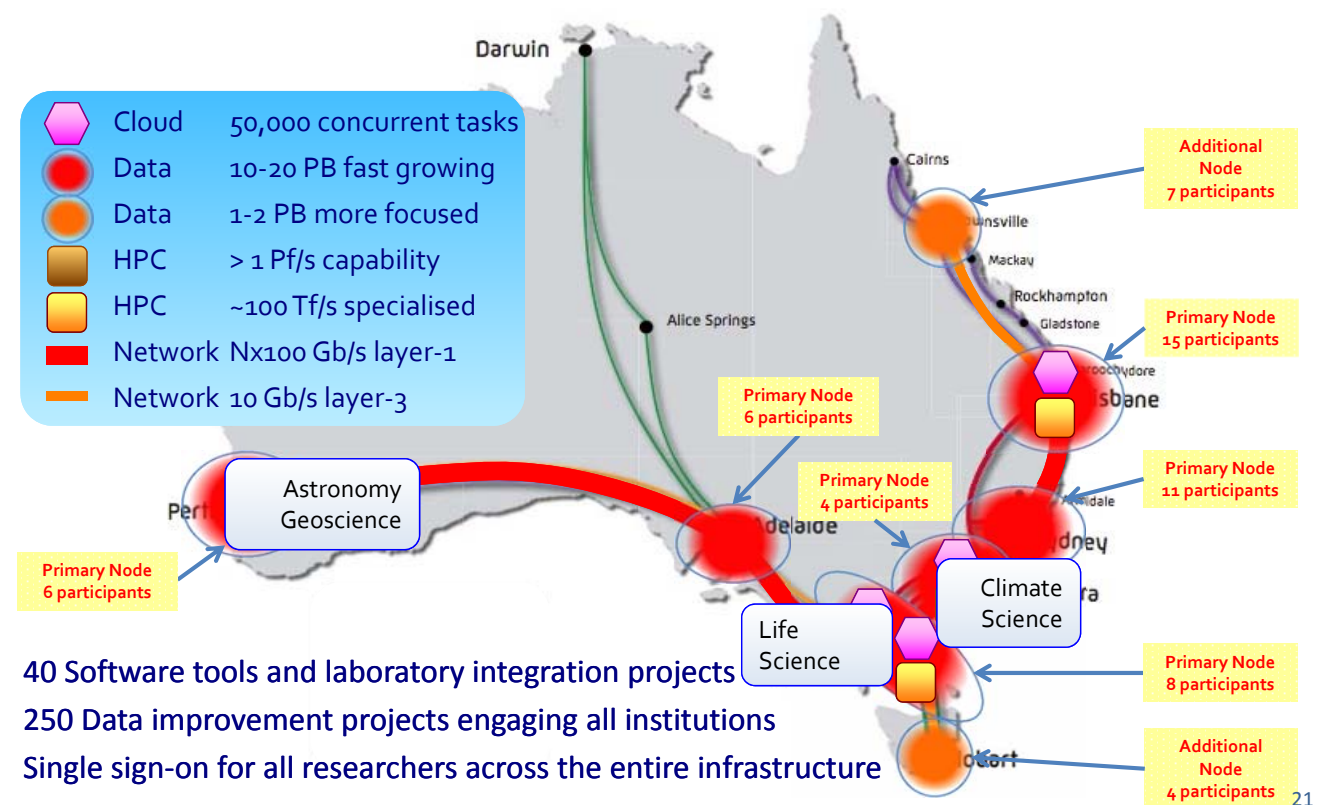
The Australian national e-infrastructure platform (2013)



The Australian national e-infrastructure platform (2013)



A national Research Data Commons of published and accessible research data



Australian e-infrastructure going forward

Continue to build towards our aims:

- Advance leading edge science and research by enabling a new order of informatics rich research tasks
- Enhance the quality and reproducibility of research by better access to reference quality data and community assured software codes
- Support world class research infrastructure by adding networks, computation, data and tools capabilities to other research infrastructure investments
- Deliver significant value to competitive and problem oriented research investments by institutions and funding agencies
- Provide substantial financial and operating efficiencies

Conclusion

- National Capability



- National Coherence



- National Sustainability



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Discussion



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